

RESULT 3
US-10-303-266-11
; Sequence 11, Application US/10303266
; Publication No. US20040101848A1
; GENERAL INFORMATION:
; APPLICANT: Donna T. Ward
; APPLICANT: Alexander H. Borchers
; APPLICANT: Kenneth W. Dobie
; TITLE OF INVENTION: MODULATION OF GLUCOSE TRANSPORTER-4 EXPRESSION
; FILE REFERENCE: RTS-0426
; CURRENT APPLICATION NUMBER: US/10/303,266
; CURRENT FILING DATE: 2002-11-23
; NUMBER OF SEQ ID NOS: 157
; SEQ ID NO 11
; LENGTH: 2128
; TYPE: DNA
; ORGANISM: H. sapiens
; FEATURE:
; NAME/KEY: CDS
; LOCATION: (146)...(1675)
US-10-303-266-11

Query Match 99.9%; Score 1528.4; DB 7; Length 2128;
Best Local Similarity 99.9%; Pred. No. 0;
Matches 1529; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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| Qy | 1 | ATGCCGTCGGGCTTCCAACAGATAGGCTCCGAAGATGGGGAACCCCTCAGCAGCGAGTG | 60 |
| | | | |
| Db | 146 | ATGCCGTCGGGCTTCCAACAGATAGGCTCCGAAGATGGGGAACCCCTCAGCAGCGAGTG | 205 |
| Qy | 61 | ACTGGGACCCTGGTCCTTGCTGTGTTCTCTGCGGTGCTTGGCTCCCTGCAGTTTGGGTAC | 120 |
| | | | |
| Db | 206 | ACTGGGACCCTGGTCCTTGCTGTGTTCTCTGCGGTGCTTGGCTCCCTGCAGTTTGGGTAC | 265 |
| Qy | 121 | AACATTGGGGTCATCAATGCCCTCAGAAGGTGATTGAACAGAGCTACAATGAGACGTGG | 180 |
| | | | |
| Db | 266 | AACATTGGGGTCATCAATGCCCTCAGAAGGTGATTGAACAGAGCTACAATGAGACGTGG | 325 |
| Qy | 181 | CTGGGGAGGCAGGGGCTGAGGGACCCAGCTCCATCCCTCCAGGCACCCTCACCACCCTC | 240 |
| | | | |
| Db | 326 | CTGGGGAGGCAGGGGCTGAGGGACCCAGCTCCATCCCTCCAGGCACCCTCACCACCCTC | 385 |
| Qy | 241 | TGGGCCCTCTCCATGGCCATCTTTCCGTGGGCGGCATGATTTCCTCCTTCTCATTGGT | 300 |
| | | | |
| Db | 386 | TGGGCCCTCTCCGTGGCCATCTTTCCGTGGGCGGCATGATTTCCTCCTTCTCATTGGT | 445 |
| Qy | 301 | ATCATCTCTCAGTGGCTTGAAGGAAAGGGCCATGCTGGTCAACAATGTCTGGCGGTG | 360 |
| | | | |
| Db | 446 | ATCATCTCTCAGTGGCTTGAAGGAAAGGGCCATGCTGGTCAACAATGTCTGGCGGTG | 505 |
| Qy | 361 | CTGGGGGCGAGCCTCATGGGCTGGCCAACGCTGCTGCCTCCTATGAAATGCTCATCCTT | 420 |
| | | | |
| Db | 506 | CTGGGGGCGAGCCTCATGGGCTGGCCAACGCTGCTGCCTCCTATGAAATGCTCATCCTT | 565 |
| Qy | 421 | GGACGATTCTCATTGGCGCCTACTCAGGGCTGACATCAGGGCTGGTGCCCATGTACGTG | 480 |
| | | | |
| Db | 566 | GGACGATTCTCATTGGCGCCTACTCAGGGCTGACATCAGGGCTGGTGCCCATGTACGTG | 625 |
| Qy | 481 | GGGGAGATTGCTCCCACTCACCTGCGGGGCGCCCTGGGGACGCTCAACCAACTGGCCATT | 540 |
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| Db | 626 | GGGGAGATTGCTCCCACTCACCTGCGGGGCGCCCTGGGGACGCTCAACCAACTGGCCATT | 685 |
| Qy | 541 | GTTATCGGCATTCTGATCGCCAGGTGCTGGGCTTGGAGTCCCTCCTGGGCACTGCCAGC | 600 |
| | | | |
| Db | 686 | GTTATCGGCATTCTGATCGCCAGGTGCTGGGCTTGGAGTCCCTCCTGGGCACTGCCAGC | 745 |
| Qy | 601 | CTGTGGCCACTGCTCCTGGGCTCACAGTGCTACCTGCCCTCCTGCAGTGCTCCTGCTG | 660 |
| | | | |
| Db | 746 | CTGTGGCCACTGCTCCTGGGCTCACAGTGCTACCTGCCCTCCTGCAGTGCTCCTGCTG | 805 |
| Qy | 661 | CCCTTCTGTCCCGAGAGCCCCGCTACCTCTACATCATCCAGAATCTCGAGGGGCTGCC | 720 |
| | | | |
| Db | 806 | CCCTTCTGTCCCGAGAGCCCCGCTACCTCTACATCATCCAGAATCTCGAGGGGCTGCC | 865 |
| Qy | 721 | AGAAAGAGTCTGAAGCGCCTGACAGGCTGGGCCGATGTTTCTGGAGTGCTGGCTGAGCTG | 780 |
| | | | |
| Db | 866 | AGAAAGAGTCTGAAGCGCCTGACAGGCTGGGCCGATGTTTCTGGAGTGCTGGCTGAGCTG | 925 |
| Qy | 781 | AAGGATGAGAAGCGGAAGCTGGAGCGTGAGCGGCCACTGTCCCTGCTCCAGCTCCTGGGC | 840 |
| | | | |
| Db | 926 | AAGGATGAGAAGCGGAAGCTGGAGCGTGAGCGGCCACTGTCCCTGCTCCAGCTCCTGGGC | 985 |

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Qy      841 AGCCGTACCCACCGGCAGCCCTGATCATTGCGGTCGTGCTGCAGCTGAGCCAGCAGCTC 900
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Db      986 AGCCGTACCCACCGGCAGCCCTGATCATTGCGGTCGTGCTGCAGCTGAGCCAGCAGCTC 1045

Qy      901 TCTGGCATCAATGCTGTTTTCTATTATTCGACCAGCATCTTCGAGACAGCAGGGGTAGGC 960
          |||
Db     1046 TCTGGCATCAATGCTGTTTTCTATTATTCGACCAGCATCTTCGAGACAGCAGGGGTAGGC 1105

Qy      961 CAGCCTGCCTATGCCACCATAGGAGCTGGTGTGGTCAACACAGTCTTCACCTTGGTCTCG 1020
          |||
Db     1106 CAGCCTGCCTATGCCACCATAGGAGCTGGTGTGGTCAACACAGTCTTCACCTTGGTCTCG 1165

Qy     1021 GTGTTGTTGGTGGAGCGGGCGGGCGCCGACGCTCCATCTCCTGGGCCTGGCGGGCATG 1080
          |||
Db     1166 GTGTTGTTGGTGGAGCGGGCGGGCGCCGACGCTCCATCTCCTGGGCCTGGCGGGCATG 1225

Qy     1081 TGTGGCTGTGCCATCCTGATGACTGTGGCTCTGCTCCTGCTGGAGCGAGTTCAGCCATG 1140
          |||
Db     1226 TGTGGCTGTGCCATCCTGATGACTGTGGCTCTGCTCCTGCTGGAGCGAGTTCAGCCATG 1285

Qy     1141 AGCTACGTCTCCATTGTGGCCATCTTTGGCTTCGTGGCATTTTTTGAGATTGGCCCTGGC 1200
          |||
Db     1286 AGCTACGTCTCCATTGTGGCCATCTTTGGCTTCGTGGCATTTTTTGAGATTGGCCCTGGC 1345

Qy     1201 CCCATTCTTGGTTCATCGTGGCCGAGCTCTTCAGCCAGGACCCCGCCGGCAGCCATG 1260
          |||
Db     1346 CCCATTCTTGGTTCATCGTGGCCGAGCTCTTCAGCCAGGACCCCGCCGGCAGCCATG 1405

Qy     1261 GCTGTGGCTGGTTTCTCCAAGTGGACGAGCAACTTCATCATTGGCATGGGTTTCCAGTAT 1320
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Db     1406 GCTGTGGCTGGTTTCTCCAAGTGGACGAGCAACTTCATCATTGGCATGGGTTTCCAGTAT 1465

Qy     1321 GTTGGCGAGGCTATGGGGCCCTACGTCTTCCTTCTATTTGCGGTCCTCCTGCTGGGCTTC 1380
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Db     1466 GTTGGCGAGGCTATGGGGCCCTACGTCTTCCTTCTATTTGCGGTCCTCCTGCTGGGCTTC 1525

Qy     1381 TTCATCTTCACCTTCTTAAGAGTACCTGAAACTCGAGGCCGGACGTTTGACCAGATCTCA 1440
          |||
Db     1526 TTCATCTTCACCTTCTTAAGAGTACCTGAAACTCGAGGCCGGACGTTTGACCAGATCTCA 1585

Qy     1441 GCTGCCTTCCACCGGACACCCTCTCTTTTAGAGCAGGAGGTGAAACCCAGCACAGAACTT 1500
          |||
Db     1586 GCTGCCTTCCACCGGACACCCTCTCTTTTAGAGCAGGAGGTGAAACCCAGCACAGAACTT 1645

Qy     1501 GAGTATTTAGGGCCAGATGAGAACGACTGA 1530
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Db     1646 GAGTATTTAGGGCCAGATGAGAACGACTGA 1675

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RESULT 4

US-10-067-449-9

; Sequence 9, Application US/10067449

; Publication No. US20030166258A1

; GENERAL INFORMATION:

; APPLICANT: Muller, Gunter

; APPLICANT: Koller, Klaus-Peter

; APPLICANT: Boles, Eckhard

; APPLICANT: Wieczorke, Roman

; APPLICANT: Dlugai, Silke

; TITLE OF INVENTION: Saccharomyces cerevisiae Yeast Strain With Functional Expression of a

; TITLE OF INVENTION: GLUT Promoter

; FILE REFERENCE: DEAV2001/00002

; CURRENT APPLICATION NUMBER: US/10/067,449

; CURRENT FILING DATE: 2002-02-05

; PRIOR APPLICATION NUMBER: DE 101 06 718.6

; PRIOR FILING DATE: 2001-02-14

; NUMBER OF SEQ ID NOS: 18

; SOFTWARE: PatentIn version 3.0

; SEQ ID NO 9

; LENGTH: 7828

; TYPE: DNA

; ORGANISM: Homo sapiens

US-10-067-449-9

Query Match 99.9%; Score 1528.4; DB 6; Length 7828;

Best Local Similarity 99.9%; Pred. No. 0;

Matches 1529; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

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Qy      1 ATGCCGTCGGGCTTCCAACAGATAGGCTCCGAAGATGGGGAACCCCTCAGCAGCGAGTG 60
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☐ 1: Biochim Biophys Acta. 1997 Feb 21;1324(1):111-9.

Related Articles, Links

Characterization of rat Glut4 glucose transporter expressed in the yeast *Saccharomyces cerevisiae*: comparison with Glut1 glucose transporter.

Kasahara T, Kasahara M.

Laboratory of Biophysics, School of Medicine, Teikyo University, Tokyo, Japan.

Rat Glut4 glucose transporter was expressed in the yeast *Saccharomyces cerevisiae*, but was retained in an intracellular membranous compartment and did not contribute to glucose uptake by intact cells. A crude membrane fraction was prepared and reconstituted in liposome with the use of the freeze-thaw/sonication method. D-glucose-specific, cytochalasin B inhibitable glucose transport activity was observed. Kinetic analysis of D-glucose transport was performed by an integrated rate equation approach. The $K(m)$ under zero-trans influx condition was 12 ± 1 mM (mean \pm S.E., $n = 3$) and that under equilibrium exchange condition was 22 ± 3 mM ($n = 4$). D-glucose transport was inhibited by 2-deoxy-D-glucose or 3-O-methyl-D-glucose, but not by D-allose, D-fructose or L-glucose. Cytochalasin B, phloretin and phlorizin inhibited D-glucose transport, but neither p-chloromercuribenzoic acid (pCMB) (0-0.1 mM) nor p-chloromercuribenzenesulfonic acid (pCMBS) (0-1.0 mM) inhibited this activity. High concentrations of $HgCl_2$ were required to inhibit D-glucose transport (IC_{50} , 370 μ M). Comparing these properties to those of rat Glut1 we found two notable differences; (1) in Glut1, $K(m)$ under zero-trans influx was significantly smaller than that under equilibrium exchange but in Glut4 less than two-fold difference was seen between these two $K(m)$ values; and (2) Glut1 was inhibited with pCMB, pCMBS and low concentrations of $HgCl_2$ (IC_{50} , 3.5 μ M), whereas Glut4 was almost insensitive to SH reagents. To examine the role of the exofacial cysteine, we replaced Met-455 of Glut4 (corresponding to Cys-429 of Glut1) with cysteine. The mutated Glut4 was inhibited by pCMB or pCMBS and the IC_{50} of $HgCl_2$ decreased to 47 μ M, whereas $K(m)$, substrate specificity and the sensitivity to cytochalasin B were not significantly changed, indicating that the existence of exofacial cysteine contributed only to increase SH sensitivity in Glut4.